

REMARKS

Reconsideration and allowance of the subject application are respectfully requested. Claims 1-36 are pending in the application. Applicant submits that all the pending claims are allowable as discussed below.

I. Claim Rejection under 35 U.S.C. § 112, first paragraph

Claims 1-4, 8, 12, 18, 21 and 27-30 are rejected under 35 U.S.C. 112, first paragraph, as containing subject matter which was not described in the specification in such a way as to reasonably convey to one skilled in the relevant art that the inventor(s), at the time the application was filed, had possession of the claimed invention. In particular, the Examiner contends that the recitation "same function is performed by same type of devices" in claims 1-4, 8, 12, 18, 21 and 27-30 is not supported by the specification and is unclear that one of ordinary skill in the art can recognize the claimed recitation.

Without conceding to the Examiner's assertion, Applicant has amended independent claims to indicate the feature of the devices as providing the same services, in order to expedite prosecution and to improve clarity. Support for the amendments may be found in at least paragraphs [60], [68], [80], [97] and [103] of the specification. Applicant respectfully requests the rejection to be withdrawn.

II. Claim Rejection under 35 U.S.C. § 102(e)

Claims 1-23 and 25-36 are rejected under 35 U.S.C. 102(e) as being anticipated by Noguchi et al (hereafter, Noguchi), U.S. Pat. No. 7,076,550.

A. Independent claims 1, 2 and 21 and their dependent claims 22-26, 31, 35, and 36

Claims 1, 2 and 21

The exemplary embodiment of the present application relates to a home network with various devices. However, some devices in the home network may provide the same services so it would make sense for these devices to cooperate with one another to provide the specific service *e.g.*, streaming same data by only one VCR or allocating a print job amongst the printers. In conventional techniques, however, there is no system for coordinating among the plurality of the same services in the current middleware service definitions for the home network. In an exemplary embodiment, a cooperative work service apparatus is provided which has a negotiator module for determining the role of each device, a coordinator module which coordinates same service amongst various devices in the home network and a supporter module which implements one of the services that need to be performed. In an exemplary embodiment, in each device, one of the coordinator module or the supporter module is activated. Accordingly, the services provided in the home network can be efficiently implemented and standardized.

Independent claim 1 recites (emphasis added):

A cooperative work service management apparatus comprising a negotiator module for determining cooperative work service roles of devices connected to a network, through a predetermined election algorithm, so that a cooperative work service can be performed among the devices by using descriptions collected from the devices, and controlling operations of the devices according to the determined cooperative work service roles to process a control command transmitted from a control device connected to the network,

wherein the cooperative work service comprises at least one function that is performed by at least two of the devices each of which is configured to individually perform the at least one function, and

wherein the at least two devices provide the same services in the network.

Independent claim 2 recites: “coordinator module for one of directly performing a control command transmitted from a control device present in a network having devices connected thereto and transmitting the control command to other devices so as to control operations of the devices performing at least one same function where the at least one same function is required for a cooperative work service, according to descriptions collected from the devices connected to the network and cooperative work service roles determined through a predetermined algorithm” and “the at least two devices provide the same services in the network.”

Independent claim 21 recites: “causing a cooperative work service to inform other cooperative work services connected to a network of a presence of said cooperative work service and to exchange service descriptions with cooperative work services having the same service functions; determining a role of the cooperative work service by using the provided service descriptions and a predetermined election algorithm; and selectively executing one of a coordinator module and a supporter module according to the determined role” and “the at least two devices provide the same services in the network.”

Prior Art Relied on by the Examiner - Noguchi

Noguchi relates to a scanner (1) and a printer (2) each having a network interface unit (11/21) for transferring data with a network (7), an apparatus information interpretation unit (12/22) for interpreting information from other apparatuses, an apparatus information updating unit (13/23) for updating apparatus information based on this interpretation, and a functional information storing unit (14/24) for storing in advance functional information of its own apparatus (FIGs. 1 and 2). For example, when a new printer (2) is connected to a network (7) to which a scanner (1) is already connected, the printer (2) broadcasts functional information of its

own apparatus stored in the function storing unit (14) by means of the network interface unit (21).

In Noguchi, the scanner (1) recognizes that a new apparatus has been connected and the functions of the new apparatus through the apparatus information interpretation unit (12) that interprets this information (*see* Abstract). Accordingly, network devices can be connected to each other without a server (col. 2, lines 24 to 48). That is, Noguchi describes a network of connecting complementary devices so that they can utilize each others services.

Specifically, Noguchi describes that the information of its own apparatus include function information of its own apparatus, and the apparatus information interpretation unit include a function interpretation unit for interpreting the function information of the other network connection apparatuses sent from the other network connection apparatuses. According to this configuration, the apparatus newly connected to the network notifies the other network connection apparatuses of the function information of its own apparatus, and the other network connection apparatuses can recognize what function the newly connected network connection apparatus has by interpreting the function information in the function interpretation unit of the apparatus information interpretation unit. Thus, without the need for a server, all the other apparatuses connected to the network can recognize the function of each network connection apparatus. Thus, it is possible to judge autonomously the services that can be provided and to provide the same to a user (col. 3, lines 25 to 56). In short, in Noguchi, the focus is to connect the devices without a server *i.e.*, without having a coordinator, by having each device recognize the complementary services performed by other devices.

Examiner's Position

The Examiner does not rebut particular arguments made by the Applicant but simply alleges that the broadest reasonable interpretation of the claims is taught by Noguchi (*see* page 19 of the Office Action). The Examiner further relies on Fig. 8 of Noguchi (*see* page 20 of the Office Action). That is, it appears that the Examiner takes the position that the claims include complementary functions *e.g.*, a scanner cooperating with a printer or a hard disk as opposed to just being limited to two devices performing same function. Additionally, the Examiner contends that Fig. 5 of Noguchi teaches “at least one function that is performed by at least two of the devices each of which is configured to individually perform the at least one function” of claim 1. Applicant respectfully disagrees.

Applicant's Arguments

Noguchi simply discloses connecting the devices without a server *i.e.*, a control device. Noguchi, however, is unrelated to devices performing the same function *e.g.*, two printers. That is, Noguchi does not disclose or suggest splitting same functions among the devices. Furthermore, Noguchi does not teach or suggest “the devices provide the same services in the network,” of the claimed invention.

Fig. 8 of Noguchi and its corresponding description clearly illustrates this point. Fig. 8 depicts a scanner, a printer, and a hard disk (complementary devices that perform different functions). Noguchi describes the hard disk has a function of “store” for storing data and receives an image as an input contents (col. 12, lines 62 to 67). Noguchi further describes the printer has the function “print” (col. 10, lines 51 to 54). The scanner has the function “scan” (Fig. 4; col. 11, lines 32 to 42). In other words, each device provides a different (new) service

that the other device does not provide (col. 11, lines 24 to 31). In other words, Noguchi describes combining services of various devices to create a new service. For example, the devices can now provide a new function “copy”, which will include the scanner scanning the document and the printer printing the document (col. 11, line 56 to col. 12, line 3). Fig. 5 defines the contents of the new service in combination of the scan service and the print service.

It is clear, however, that Noguchi does not disclose or even remotely suggest devices “performing at least one (same) function” (emphasis added). In other words, Noguchi describes cooperation between different devices (printer and a scanner) and not devices that perform same functions (printer 1 and printer 2). In short, it is clear that Noguchi does not disclose or even remotely suggest two devices (each of which is can perform the entire function) performing only a portion of that same function such that the work is split between these two devices.

Moreover, as discussed above, in Noguchi, each of devices provides a different service from the other devices. Thus, Noguchi does not teach or suggest “the devices provide the same services in the network,” of the claimed invention of claims 1, 2 and 21.

Noguchi does not disclose or suggest “the cooperative work service comprises at least one function that is performed by at least two of the devices each of which is configured to individually perform the at least one function,” as set forth in claim 1. Noguchi also does not disclose or suggest “transmitting the control command to the devices so as to control operations of the devices performing at least one same function where the at least one same function is required for a cooperative work service,” as set forth in claim 2 and “a cooperative work service to inform other cooperative work services connected to a network of a presence of said

cooperative work service and to exchange service descriptions with cooperative work services having the same service functions,” as set forth in claim 21.

Furthermore, Noguchi simply discloses connecting the devices to each other without a server, there is no control device. Noguchi does not disclose or suggest having a control device *e.g.*, a server on the network. In other words, Noguchi cannot possible describe “a coordinator module for one of directly performing a control command transmitted from a control device present in a network having devices connected thereto,” as set forth in claim 2. The Examiner fails to address this additional argument with respect to claim 2 and this argument remains unrebutted.

For at least these exemplary reasons, Applicant respectfully submits that Noguchi does not and cannot describe the unique features set forth in claims 1, 2 and 21. Accordingly, Applicant respectfully requests the Examiner to withdraw this rejection of claims 1, 2 and 21 and their dependent claims 22-26, 31, 35 and 36.

Additional Arguments for the dependent claims

In addition, dependent claim 24 *inter alia* recites: “determining a cooperative work service role of each device as a coordinator if it is determined that there are no said other cooperative work services.” Contrary to the Examiner’s allegations on page 11 of the Office Action, Noguchi does not disclose or suggest that the first device performing a particular function is a coordinator whereas other devices with the same functions are supporters. In other words, Noguchi clearly does not disclose or suggest determining if the coordinator is already present for a particular work and if not, becoming the coordinator. This argument remains

unrebutted by the Examiner. For at least these additional exemplary reasons, claim 24 is patentably distinguishable from Noguchi.

In addition, dependent claim 35 recites: “if the coordinator is a device which performs same service as another device exists, the another device is a supporter which executes one of processing a control command transmitted from the coordinator device and resides on the network providing services corresponding to the control command provided by the coordinator device.” Noguchi clearly does not disclose or even remotely suggest the coordinator and the supporter performing same service. For at least these additional exemplary reasons, claim 35 is patentably distinguishable from Noguchi.

Dependent claim 36 recites: “the negotiator module coordinates among the devices that provide same services using middleware service definitions for a home network.” The Examiner simply relies on Fig. 8 of Noguchi as allegedly describing the above-noted unique features of claim 36 (*see* page 16 of the Office Action). Applicant respectfully disagrees. Figure 8 of Noguchi simply describes units of each device (col. 12, line 47 to col. 13, line 67). Nowhere, however, does Noguchi describe that the devices provide same services using middleware service definitions for a home network. The Examiner’s position is not substantiated with the actual disclosure from Noguchi. For at least these additional exemplary reasons, claim 36 is patentably distinguishable from Noguchi.

B. Independent Claims 3, 4, 8, 12, 18, 27-30 and their dependent Claims 5-7, 9-11, 13-17, 19, 20, and 32-34

Independent claims 3, 28 and 29 recite features similar to, although not necessarily coextensive with, the features discussed above with respect to claim 2. Therefore, claims 3, 28

and 29 are patentable over Noguchi for reasons analogous to those discussed above with regard to claim 2.

Independent claims 4, 8, 12, 18 and 27 recite features similar to, although not necessarily coextensive with, the features discussed above with respect to claim 1. Therefore, claims 4, 8, 12, 18 and 27 are patentable over Noguchi for reasons analogous to those discussed above with regard to claim 1. Claims 5-7, 9-11, 13-17, 19, 20, and 32-34 are patentable at least by virtue of their dependency.

Independent claim 30 recites features similar to, although not necessarily coextensive with, the features discussed above with respect to claim 21. Therefore, claim 30 is patentable over Noguchi for reasons analogous to those discussed above with regard to claim 21.

In addition, independent claim 12 recites “a negotiator module connected to the plurality of devices, for determining cooperative work service roles of the plurality of devices by applying device descriptions collected from the plurality of devices to a predetermined election algorithm so that the cooperative work service can be performed in consideration of a function of a corresponding device.” The Examiner alleges that an interpretation unit of Noguchi discloses the negotiator module set forth in claim 12 (*see* pages 8-9 of the Office Action). Applicant respectfully disagrees. As is clearly visible from Fig. 8 and the corresponding description in Noguchi, the interpretation unit is provided within a device and is not a separate module connected to the plurality of devices. This argument remains unrebutted by the Examiner. For at least these additional exemplary reasons, claim 12 is patentable over Noguchi.

Additional Arguments for Dependent Claims

In addition, dependent claim 7 recites: “the election algorithm is written in a predetermined programming language, which serves to coordinate the cooperative work service roles of the devices so that consistency in the same services can be maintained according to a function of service to be provided through the cooperative work service by using the descriptions provided from the devices present in the network.” The Examiner alleges that Figs. 3-5 and 14-15 of Noguchi disclose the above-quoted unique features of claim 7 (*see* pages 7 and 8 of the Office Action). Applicant respectfully disagrees. These figures of Noguchi show a functional definition description for various different devices *i.e.*, a printer, scanner, gateway, etc. Further, these figures in Noguchi show service related description with input and output parameters. These figures and the corresponding descriptions of Noguchi, however, do not disclose or even remotely suggest an election algorithm for allocating same service to devices capable of performing this same service. That is, Noguchi does not disclose or suggest having two printers and sending pages 1-6 of a twelve page document to be printed on one printer and the other six pages to be printed on the other printer. This argument remains unrebutted by the Examiner. For at least these addition exemplary reasons, claim 7 is patentable over Noguchi because the cited reference does not teach or suggest all of the features of the claim.

Dependent claim 15 recites: “a supporter module, wherein the supporter module is provided in a device, to which the supporter module does not belong, among the plurality of devices connected to the network.” Contrary to the Examiner’s allegations on pages 7-8 of the Office Action, in Noguchi, functional storage units are provided in the device to which they belong. That is, the function storage unit 14 belongs to the scanner and the function storage unit

24 belongs to the printer, as explicitly disclosed in Noguchi (col. 9, lines 38 to 49). That is, these units **store function definition of its own device** and the services it can provide in cooperation with other devices. This argument remains unrebutted by the Examiner. For at least these additional reasons, claim 15 is patentably distinguishable from Noguchi.

Dependent claim 32 recites: “the negotiator modules sets the determined cooperative work service roles by activating one of the coordinator module or a support module which receives the control command transmitted from the coordinator module to provide a service corresponding to the control command and deactivating the other module.” The Examiner alleges that Fig. 8 of Noguchi describe the above-quoted unique features of claim 32 (*see* pages 16 and 17 of the Office Action). The Examiner’s position is not understood. It is clear that in Noguchi there is no negotiator module that activates coordinator or support module in the devices and deactivates the other one. For at least these additional exemplary reasons, claim 32 is patentably distinguishable from Noguchi.

Dependent claim 33 recites: “the negotiator module is dedicated to determining cooperative work services roles and is in a separate apparatus from the plurality of devices.” The Examiner alleges that Fig. 8 of Noguchi describe the above-quoted unique features of claim 33 (*see* page 17 of the Office Action). The Examiner’s position is not understood. It is clear that in Noguchi there is no negotiator module dedicated to assigning roles of other devices and that is in a separate apparatus from the devices. For at least these additional exemplary reasons, claim 33 is patentably distinguishable from Noguchi.

Dependent claim 34 recites: “if the supporter module is activated in a device, the coordinator module is deactivated in the device and vice versa.” The Examiner alleges that Fig.

8 of Noguchi describe the above-quoted unique features of claim 34 (*see* page 17 of the Office Action). The Examiner's position is not understood. It is clear that in Noguchi there is no disclosure or even remote suggestion of having one module activated while the other module is deactivated and vice versa. For at least these additional exemplary reasons, claim 34 is patentably distinguishable from Noguchi.

C. Allowable Subject Matter

Claim 24 is objected to as being dependent upon a rejected base claim, but would be allowable if rewritten in independent form including all of the limitations of the base claim and any intervening claims. Applicant submits that claim 24 is patentable at least because of its dependency on claim 23.

III. Conclusion

In view of the above, reconsideration and allowance of this application are now believed to be in order, and such actions are hereby solicited. If any points remain in issue which the Examiner feels may be best resolved through a personal or telephone interview, the Examiner is kindly requested to contact the undersigned at the telephone number listed below.

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Respectfully submitted,

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